

WETLANDS REPORT & MANAGEMENT PLAN:

Towne Properties – Walker Wood HOA
LEWIS CENTER, OHIO

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Prepared for:

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WETLANDS REPORT
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1 INTRODUCTION

Towne Properties hired MAD Scientist Associates, LLC (MAD) to investigate and assess wetlands and other habitats within Walker Wood HOA, a communally-owned natural space encompassed by residential properties on Aikin Circle South (Parcel ID 31842408012000) in Lewis Center, Ohio. It is 1.609 acres of forested land with street access at its northern boundary (Figure 1). A wetland determination was completed at this site with the primary objectives of identifying wetland boundaries, determining sources of negative impacts to the site, and setting management goals to improve the site's ecological function.

Field work was completed on December 6, 2018 by MAD Staff Environmental Scientists (Team). Ideally, wetland determinations would be completed during the growing season so that the vegetative community can be accurately characterized, but woody vegetation and overwintering herbaceous plants can be used to accurately determine wetland boundaries when paired with soil and hydrologic data. Wetlands were identified according to the methods presented in the 1987 US Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987; henceforth referred to as the 1987 Manual) and the Midwest Regional Supplement Version 2.0 (USACE, 2010).

1.1 Wetland Definition and Authority

Wetlands are protected water resources that fall under the jurisdiction of the USACE and/or Ohio Environmental Protection Agency (EPA). USACE uses the following definition of wetlands:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

As a result of a 2001 Supreme Court decision (*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 531 U.S. 159 [2001]), the USACE no longer regulates

Isolated Wetlands (those with no discernible surface connection to streams or rivers). This regulatory authority has been assumed by the Ohio EPA through its Isolated Wetlands Permit program.

Because site conditions indicate that wetlands are present, and federal and state regulations control the discharge of fill materials in such areas, the presence and extent of these wetlands has been determined.

1.2 Wetland Assessment

To document the relative quality of the wetlands on site, the Ohio Rapid Assessment Method (version 5.0) for wetlands was used to determine a score and assign a wetland category (ORAM; Ohio EPA, 2001). This method was developed by the Ohio EPA to evaluate flood/storm water control; water quality improvement; natural biological support; and overall and specific habitat values for Ohio wetlands. The Ohio EPA ranks wetlands as Category 1, 2, or 3, depending on their relative quality (based on size, habitat value, etc.), with Category 3 encompassing the highest quality wetlands in Ohio.

1.3 General Site Description

The site contains second growth mature forest dominated by oak (*Quercus* spp.) and hickory (*Carya* spp.) trees, with a central wetland depression dominated by buttonbush (*Cephalanthus occidentalis*). Historically, there were mature green ash (*Fraxinus pennsylvanica*) in the canopy, but most of these have died as a result of the emerald ash borer (*Agrilus planipennis*). A high-quality understory (shrub layer) exists throughout the forest, which includes spicebush (*Lindera benzoin*) and saplings of beech (*Fagus grandifolia*) and green ash. Invasive species present within the forest include honeysuckle (*Lonicera maackii*), multiflora rose (*Rosa multiflora*), and privet (*Ligustrum vulgare*). These species are common throughout, but not prevalent, with privet being the most abundant.

According to the Environmental Protection Agency's Waters GeoViewer, the site lies within the Westerville Reservoir-Alum Creek watershed (Hydrologic Unit Code 050600011601). The subdivision itself forms the headwaters to a tributary flowing south/southeast and connecting with Alum Creek just east of Bale Kenyon Road. This tributary originates just north of Aikin Circle and

likely shares some connection with waters from the site through the subsurface drain within the northern section of the site. This specific area of this watershed is 0.45 square miles.

2 RESULTS

2.1 Wetlands

One wetland was determined to be present during the field investigation. It can be classified as a forested wetland containing a buttonbush/spicebush thicket. The total size of this wetland is 0.44 acres, located in the north central portion of the site. It is permanently inundated up to 11 inches, with seasonal pulses of up to 15 inches (evidenced by water marks on trees). The hydrology is being impacted by a ditch leading to a subsurface drain that inhibits water from rising higher to its natural capacity. The general vegetative community is composed of high-quality, conservative plant species that offer tremendous value to wildlife as a source of shelter and food. Buttonbush, in particular, is used as a food source by many types of native bees, wasps, and butterflies, and their stems provide valuable structure for breeding amphibians.

During the site visit, a neighbor provided photographic evidence that spotted salamanders (*Ambystoma maculatum*) have been observed in previous years. This is notable because these salamanders are associated with relatively unimpacted wetlands with semi-permanent water (for larval development) and intact adjacent woodlands where they live underground during the summer, fall, and winter months.

An additional site visit occurred on February 7, 2019, as an attempt to document amphibian migrations to the wetland pool. The week's weather included three consecutive days of rain with temperatures exceeding 50° F, which is ideal for Ambystomids to leave underground burrows and move towards vernal pools. Jim Palus set a total of 12 funnel traps along the main pool perimeter, though no amphibians were observed upon collection the following morning.

A site visit in early April yielded evidence of amphibian use within the wetland. One egg mass was observed, which appears to be that of an ambystomid salamander. Aquatic invertebrates typical of forested wetland pools were also observed during this visit.

2.2 General Forest Health

The forest appears to be in good health, barring the disturbance caused by the emerald ash borer. The canopy openings created by large dead ash have created good habitat for disturbance-loving species like poison ivy (*Toxicodendron radicans*), blackberry (*Rubus* spp.), and woody invasives. The primary understory trees were beech, musclewood (*Carpinus caroliniana*), and American elm (*Ulmus americana*). The herbaceous community reflects that of a healthy woodland, based on a spring assessment of ephemeral wildflower species present. Of the wildflowers observed, spring beauty (*Claytonia virginica*), false mermaid weed (*Floerkea proserpinacoides*), trout lily (*Erythronium* spp.), and ramps (*Allium tricoccum*) were the most common. The presence of a robust wildflower community is indicative of a healthy woodland. A list of plant species observed can be viewed in Appendix A.

2.3 Impact Assessment

There were several instances where neighboring properties encroached upon site boundaries or have treated the wetland within Walker Wood HOA as a dumping location for yard waste and ornamental refuse. The most common infraction was the dumping of leaf litter. Other areas had piles of woody debris (cut logs, discarded Christmas trees, brush piles, etc.). Trash was not a major problem, though several balls (sport and general play) and children's shoes were observed throughout the site. The most severe impacts observed during the site visit were the drain which lowers the wetland water level and reduces the available amphibian breeding habitat, and areas where forest has been removed by selective cutting or mowing. A residence in the northeastern portion of the site has created approximately 3,500 square feet of lawn that crosses the site's eastern boundary, as well as an extensive accumulation of leaf litter, discarded ornamental plants, and pumpkins. This material was likely discarded directly into the wetland, though it remains unclear because the yard waste obstructed natural hydrology and native vegetation. In some areas (throughout the site), the deposition of leaf litter was so severe that wildflowers were unable to grow through it- often wildflower species will extend beyond forest boundaries and into mowed lawns (*i.e.* violets, spring beauty, etc.). Generally, a plant community can withstand the disturbance of dropped trees or piled logs, however, these areas create ideal habitat for adventive species such as woody vines (poison ivy included).

3 DISCUSSION & MANAGEMENT CONSIDERATIONS

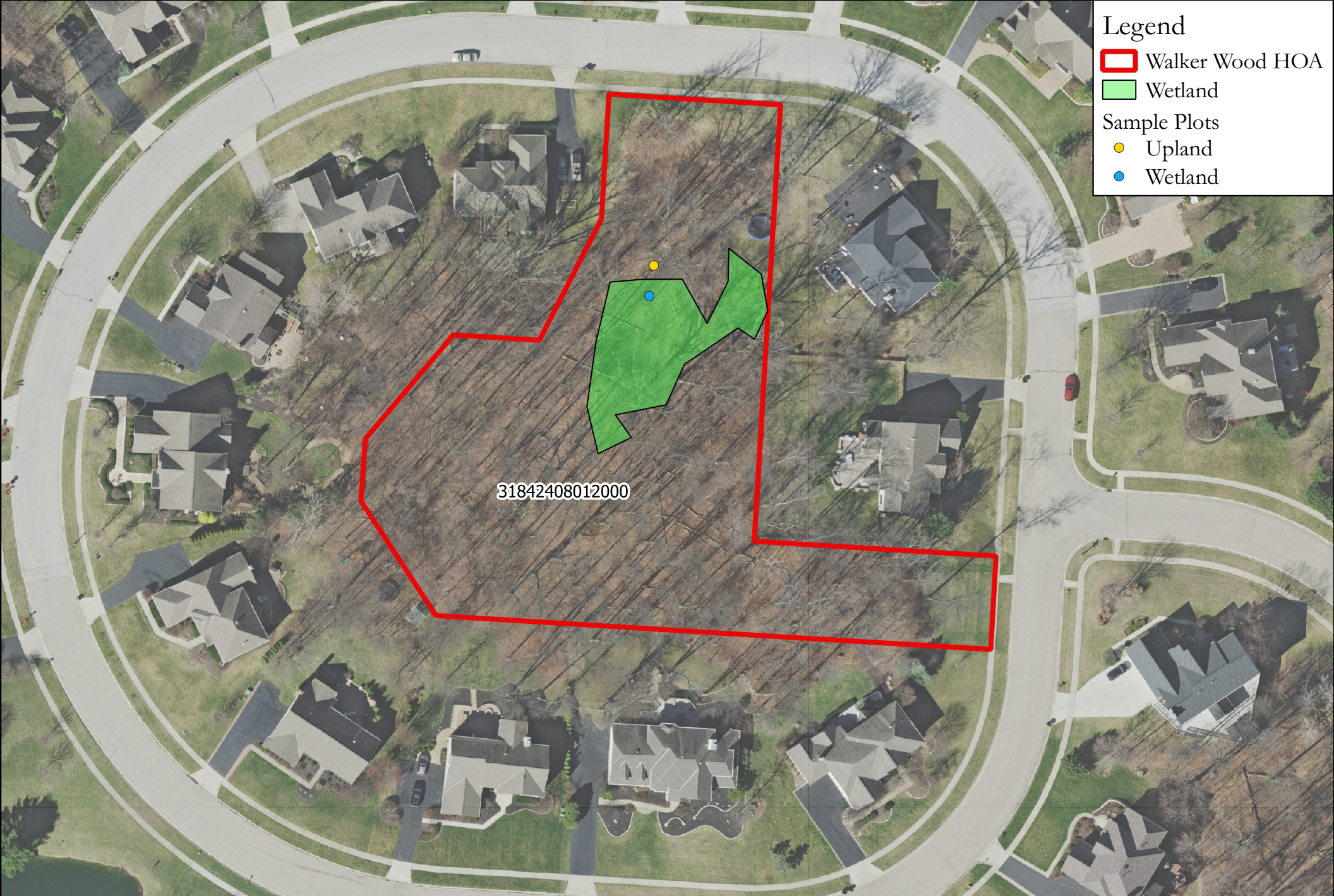
Overall, the health of the wetland and upland community appears to be in good standing. Minor amounts of non-native species were observed at the time of sampling in December. Species that should be removed in order to prevent further infestation are European privet and multiflora rose. These can be cut using a bowsaw or hand pruners near the base of the shrub and treated with a systemic herbicide, such as round up. Herbicide should be applied within an hour of cutting the stump to increase the efficacy of translocation to the plant's root system. Lesser celandine (*Ranunculus ficaria*) is a particularly aggressive and invasive flowering plant of wet areas. A few specimens were seen in the southern portion of the site. This plant spreads by bulbs and seed. It can easily be managed in its current state by shoveling out the entire plant and discarding in the garbage (not compost). If professional assistance is needed for the management of the listed species, MAD Scientist Associates is able to complete these tasks over the span of one-two days (estimated cost is <\$2,000).

Other measures to improve forest health may include limiting (or prohibiting) the input of yard waste and a supplemental planting of native understory species. The most obvious sources of yard waste include mounds of leaves and stacked wood. While these items are not inherently harmful to the forest, they can be added in such quantities that prevents seed and native perennials from germinating under such thick layers of debris. This may also create a barrier slowing to preventing water from exiting yards and entering lower elevations. This is particularly evident within the northeastern section of the site. If contracted for additional maintenance services, MAD can remove some of the piled leaf litter as part of site maintenance. We are not equipped to remove woody material.

A supplemental planting within the understory would increase diversity within the forest and create valuable foraging habitat and shelter for wildlife. The addition of berry and/or nut producing shrubs are highly sought after for migratory and overwintering birds, as well as host plants for many moth and butterfly species. These may be scattered throughout the upland area of the forest or concentrated in those areas that are maintained as lawn.

The hydroperiod of the wetland has been negatively impacted by the installation of the storm drain, which is allowing water to release before filling to capacity. While this activity is not

prohibited under state or federal laws pertaining to wetlands, it is degrading the quality of the wetland. This may be amended by creating a low berm within the excavated ditch that would allow greater depths to be achieved before spilling over into the drain during large storm events. Additionally, amphibian habitat may be improved by excavating small depressions (between 100-200 square feet) within the upland forest. Treefrogs and toads will utilize shallow, isolated pools (6-12 inches deep) to breed in during the early spring months. Increasing the depths of existing depressional features within the woodland may alleviate some flooding issues within backyards along Aikin Circle South by directing drainage ways from yards to excavated depressions.



Legend

- Walker Wood HOA
- Wetland

Sample Plots

- Upland
- Wetland

APPENDIX A
Plant Species List

WALKER WOOD HOA PLANT LIST

Common Name	Species	Form	Listed Ohio Invasive Species
Allegheny blackberry	<i>Rubus allegheniensis</i>	Shrub	
American elm	<i>Ulmus americanus</i>	Tree	
Beech	<i>Fagus grandifolia</i>	Tree	
Black cherry	<i>Prunus serotina</i>	Tree	
Blue violet	<i>Viola sororia</i>	Forb	
Buttonbush	<i>Cephalanthus occidentalis</i>	Shrub	
Cutleaf toothwort	<i>Cardamine concatenata</i>	Forb	
Dutchman's breeches	<i>Dicentra cucullaria</i>	Forb	
English ivy	<i>Hedera helix</i>	Vine	Yes
False mermaid weed	<i>Floerkea proserpinacoides</i>	Forb	
False nettle	<i>Boehmeria cylindrica</i>	Forb	
Fowl mannagrass	<i>Glyceria striata</i>	Graminoid	
Gooseberry	<i>Ribes oxycanthoides</i>	Shrub	
Green ash	<i>Fraxinus pennsylvanica</i>	Tree	
Greenbriar	<i>Smilax tamnoides</i>	Vine	
Honeysuckle	<i>Lonicera maackii</i>	Shrub	Yes
Hop sedge	<i>Carex lupulina</i>	Graminoid	
Jewelweed	<i>Impatiens capensis</i>	Forb	
Large-leaf waterleaf	<i>Hydrophyllum maculatum</i>	Forb	
Lesser celandine	<i>Ranunculus ficaria</i>	Forb	Yes
Mayapple	<i>Podophyllum peltatum</i>	Forb	
Multiflora rose	<i>Rosa multiflora</i>	Shrub	Yes
Musclewood	<i>Carpinus caroliniana</i>	Tree	
Poison ivy	<i>Toxicodendron radicans</i>	Vine	
Privet	<i>Ligustrum vulgare</i>	Shrub	Yes
Purple cress	<i>Cardamine douglassii</i>	Forb	
Ramps	<i>Allium tricoccum</i>	Forb	
Red oak	<i>Quercus rubra</i>	Tree	
Shagbark hickory	<i>Carya ovata</i>	Tree	
Spicebush	<i>Lindera benzoin</i>	Shrub	
Spring beauty	<i>Claytonia virginica</i>	Forb	
Swamp white oak	<i>Quercus bicolor</i>	Tree	
Trout lily	<i>Erythronium spp.</i>	Forb	
White avens	<i>Geum canadense</i>	Forb	
Wild geranium	<i>Geranium maculatum</i>	Forb	